

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Claim 1 is cancelled.

2. (original): A method of indexing a feature vector space comprising the steps of:
 - (a) partitioning the feature vector space into a plurality of approximation regions;
 - (b) selecting an arbitrary approximation region to determine whether the selected approximation region is heavily or sparsely distributed; and
 - (c) if the approximation region is determined to be sparsely distributed, indexing the corresponding approximation region as one special node belonging to a child node of the tree data structure, together with any other sparsely distributed approximation region spaced apart by a distance less than a predetermined distance.
3. (original): The method of claim 2, wherein the steps (b) and (c) are repeatedly performed on all approximation regions partitioned in the step (a).
4. (original): The method of claim 2, prior to the step (c), further comprising the step of:
 - (c-1) if the approximation region selected in the step (b) is determined to be heavily distributed, indexing the corresponding approximation region as an ordinary node, partitioning

repeating the step (b) for the partitioned sub-approximation regions.

5. (original): The method of claim 4, wherein the steps (b) and (c) are performed on all approximation regions partitioned in the step (a).
6. (original): The method of claim 2, after the step (c), further comprising the steps of:
 - (d) determining whether all approximation regions are indexed as special nodes;
 - (e) if all approximation regions are not indexed as special nodes, selecting the next approximation region and performing the steps after (b) on the approximation region repeatedly; and
 - (f) if all approximation regions are indexed as special nodes, completing the indexing.
7. (original): The method of claim 2, wherein the plurality of approximation regions are subspaces used in random indexing.
8. (original): The method of claim 2, wherein the plurality of approximation regions are subspaces used in multi-dimensional scaling (MDS), Fast-map, or locality sensitive hashing

the corresponding approximation region into a plurality of sub-approximation regions, and repeating the step (b) for the partitioned sub-approximation regions.

5. (original): The method of claim 4, wherein the steps (b) and (c) are performed on all approximation regions partitioned in the step (a).

6. (original): The method of claim 2, after the step (c), further comprising the steps of:

(d) determining whether all approximation regions are indexed as special nodes;

(e) if all approximation regions are not indexed as special nodes, selecting the next approximation region and performing the steps after (b) on the approximation region repeatedly; and

(f) if all approximation regions are indexed as special nodes, completing the indexing.

7. (original): The method of claim 2, wherein the plurality of approximation regions are subspaces used in random indexing.

8. (original): The method of claim 2, wherein the plurality of approximation regions are subspaces used in multi-dimensional scaling (MDS), Fast-map, or locality sensitive hashing

9. (original): The method of claim 2, wherein the step (c) comprises the step of (c') if the approximation region is determined to be sparsely distributed, indexing the corresponding approximation region as one special node belonging to a child node of the tree data structure together with an adjacent sparsely distributed approximation region.

Claims 10-17 are cancelled.